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A new pathogen of scale insects, *Aschersonia fusispora* sp. nov. (*Clavicipitaceae*) from Guangxi Province, China

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Abstract — A new anamorphic species, *Aschersonia fusispora*, is described and illustrated based on collections from a natural forest in Guangxi Province of China. The species, which occurs on unidentified *Coccidae* larvae, is characterized with thinly pulvinate, slightly convex, pale orange stromata that are surrounded by a broad membranous hypothallus, wide ostiolar openings, and a 0.3–0.5 µm conidial width.

Key words — entomopathogenic fungus, taxonomy, new taxa

Introduction

Species of the fungal genus *Aschersonia* Mont. (teleomorph *Hypocrella* Sacc.) parasitize scale insects (*Coccidae* and *Lecaniidae*, *Homoptera*) and whiteflies (*Aleyrodidae*, *Homoptera*) throughout tropical and (less often) subtropical regions, often resulting in epizootic events (Montagne 1848; Petch 1921; Mains 1959a,b; Chaverri et al. 2008; Mongkolsamrit et al. 2009; Qiu & Guan 2010). They are characterized by brightly colored pulvinate, subglobose or discoid stromata sometimes having a hypothallus, phialidic conidiogenous cells, the presence of pycnidial paraphyses, and unicellular, fusiform, and hyaline conidia which are produced in a mass of copious slime (Petch 1925; Mains 1959b; Chaverri et al. 2005, 2008).

During a survey on the biodiversity of insecticidal fungi in Guangxi province of China in 2008, two specimens of entomopathogenic *Aschersonia* were collected in evergreen broadleaved forests of the Huaping National Nature Reserve and the Maoershan National Nature Reserve. The general morphology

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of the specimens, such as flask-shaped pycnidia formed in stroma, slender branched conidiophores, fusoid conidia, and parasitism on homopteran insects, fit the generic concept of *Aschersonia*. The narrow and short-fusoid conidia, thinly pulvinate, slightly convex, pale orange stromata, and the presence of a broad membranous hypothallus differ from any described *Aschersonia* species.

Materials and methods

Two collections from Guangxi province were studied. Conidiomata were carefully dissected with a razor blade and mounted in water or lactic acid mixed with cotton blue on a slide. The method of fungal measurements and microscopic features used in this study is the same as that described previously by Qiu et al. (2009). Colour names were described following Kornerup & Wanscher (1967). The voucher specimens studied were deposited in the Mycology Herbarium, Fujian Agricultural and Forestry University (MHFAFU).

Taxonomy

Aschersonia fusispora Jun Z. Qiu, C.Y. Sun & Xiong Guan, **sp. nov.** Figs. 1A–F

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Stromata pulvinata, vel circularia, ex hyphis dense coactis composita, deorsum sparsa, hypothallum membranaceum ad 1.5 mm diam. 0.5 mm altum flavo-brunneum formantia, superficie aliquot orificiis ut punctis magnis visibilibus praedita. Pycnidialia, plerumque singula, in medio stromate immersa, 91–126 µm alta, 61–81 µm diam. Phialides cylindricae, ad 10 µm longae. Paraphyses pycnidiales praesentes, filiformes, flexuosae, ad 78 µm longae, 0.9 µm latae. Conidia fusoidea, utrinque rotundata 2.8–3.5 × 0.3–0.5 µm.

Type — J.Z. Qiu, C.Y. Sun & X. Guan 367, MHFAFU 20837 (**holotype**) on *Coccidae;* Huaping National Nature Reserve, Guangxi Prov., Lingui County, Huaping, China, alt. 1600 m, 28.X.2008; J.Z. Qiu, C.Y. Sun & X. Guan 388, MHFAFU 20858 (**paratype**) on *Coccidae;* Maoershan National Nature Reserve, Guangxi Prov., Longsheng County, Maoershan, China, alt. 1200 m, 29.X.2008.

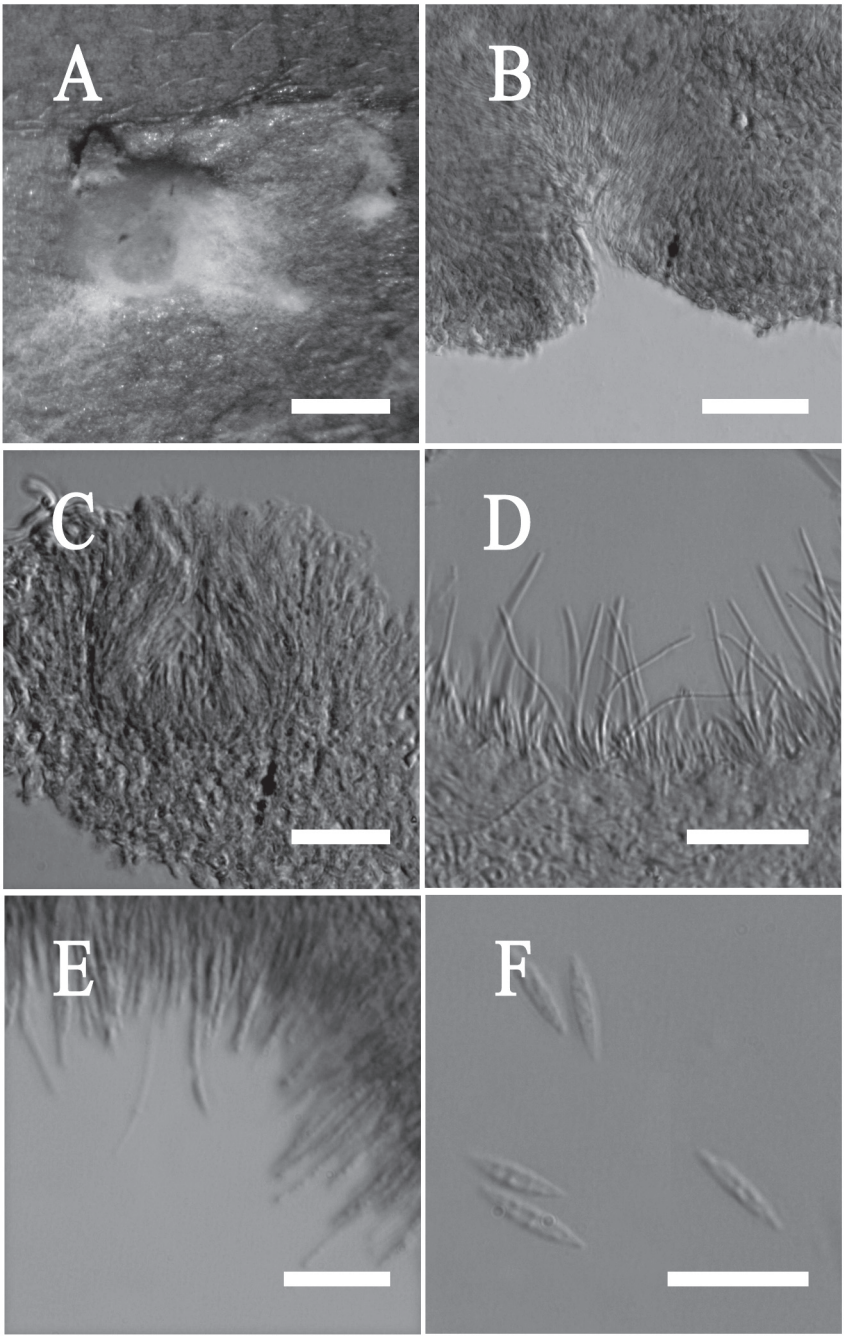
Etymology — Refers to the fusiform conidia of this species.

Teleomorph: None known.

Stromata thinly pulvinate, circular, slightly convex, consisting of dense hyphae, base spreading, forming a brownish-yellow membranous hypothallus up to 1.5 mm diam., 0.5 mm high, pale orange when fresh, several ostiolar openings as large dots visible on the surface. Pycnidia usually single, embedded in the centre of the stroma, 91–126 µm high, 61–81 µm diam. Conidiogenous cells phialidic, cylindrical, up to 10 µm long. Paraphyses present, linear, filiform,

Fig.1 *Aschersonia fusispora*. A: Stroma; B: Pycnidium; C: Longitudinal section of a flask-shaped pycnidium; D: Paraphyses; E: Conidiophores and conidiogenous cells; F: Conidia.

Scale bars: A = 1 mm; B,C,D = 50 µm; E = 20 µm; F = 5 µm.


A
B
C
D
E
F

flexuous, up to 78 μm long, 0.9 μm wide. Conidia fusoid, sometimes narrowly fusiform, with rounded ends, 2.8–3.5 × 0.3–0.5 μm.

Comments—*Aschersonia fusispora* is characterized by the pale orange, thinly pulvinate, small stromata, the small conidia, the wide ostiolar openings, and the presence of paraphyses and hypothallus. Two previously described species of *Aschersonia*, *A. microspora* Sacc. and *A. minutispora* Hywel-Jones & Mongkolsamrit (Petch 1921, Mains 1959a,b, Hywel-Jones & Evans 1993, Chaverri et al. 2005, 2008, Mongkolsamrit et al. 2009) also have spores of the similar size. However, *A. microspora* differs in having pale brown stromata consisting of dense interwoven hyphae and globose or narrowly oval and wider conidia (2–4 × 1.5 μm), and lacking pycnidia. *A. minutispora* differs in possessing larger cream-brown stromata (2.5 mm in diam., 2 mm high), more voluminous pycnidia (350–400 μm high, 300–350 μm in diam.), bigger conidia (5–6 × 1.2–1.5 μm), and longer pycnidial paraphyses up to 150 μm long and 1.5 μm in width.

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